Puget Sound Regional Council

PSRC

Parking Inventory for Seattle and Bellevue 1994

October, 1995

Prepared by:
Puget Sound Regional Council

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PARKING INVENTORY FOR SEATTLE AND BELLEVUE, 1994

EXECUTIVE SUMMARY

This study provides an important database of parking availability, utilization, and costs to support both regional and local planning needs. The Puget Sound Regional Council (PSRC) uses parking data to help in travel demand forecasting models. These models provide estimates of the amount and types of travel we can expect in the years ahead, and allow policy makers to examine the impacts of alternative transportation policy decisions. Parking costs are a key factor in modeling mode choice for both work and non-work trips.

Between April 5 and May 23, 1994, the Puget Sound Regional Council inventoried all off-street parking in the Central Business Districts (CBDs) in Seattle and Bellevue, and in the Seattle First Hill and lower Queen Anne areas. The two CBDs were also surveyed in 1987 and 1989 by the Puget Sound Council of Governments (predecessor to the current agency); First Hill and lower Queen Anne were first inventoried in 1989. In 1992, all areas were inventoried by the PSRC. The study area was divided into 19 zones in Seattle and 7 zones in Bellevue for data collection and analysis.

The parking inventory contains information on the number of stalls, occupancy, and parking costs. The types of parking inventoried included:

- off-street parking, both public and private;
- free and pay parking;
- carpool and vanpool lots;
- motor pool parking, both private and government;
- hotels and motels;
- short-term customer parking such as convenience stores and restaurants; and
- residential parking (in Seattle CBD only).

Findings

Availability

In Seattle, 52,596 parking stalls were counted in the CBD; 9,611 in First Hill; and 16,096 in lower Queen Anne. This count reflected an increase of more than 1,700 spaces in the Seattle CBD since 1992 and 12,500 since 1987. Nearly 90 percent of the growth since the first inventory occurred before 1992. Several large building projects completed during that time, either stand-alone parking facilities or garages within new office buildings, account for most of the 1987-1992 growth.

The increase since 1992 was largely attributable to the completion of the following major building projects:

- Merchants Association lot atop the International District bus tunnel station;
- Republic parking garage at 6th Ave. and James St.;
- Swedish Hospital garage at Columbia and Summit.

In Bellevue, 29,911 stalls were counted. This is an increase of less than 500 spaces since 1992; much of the increase is due to the completion of the Bellevue Convention Center (Meydenbauer Center) and the new library.

Occupancy

In the Seattle CBD, occupancy rates rose slightly (1.8 percent) since 1992 after falling 2.8 percent between 1989 and 1992; the 1994 occupancy rate of 74.6 percent is still considerably below the 1987 high of 81.5 percent. The building boom in the late 1980s substantially increased the supply of parking spaces downtown. This was immediately followed by an economic downturn in the first years of the 1990s that contributed to a decrease in parking occupancy.

Occupancy rates outside the Seattle CBD declined. Rates on First Hill went from 80.6 percent in 1989 to 76.3 percent. In lower Queen Anne, the occupancy rates decreased from 57.2 percent to 53.3 percent between 1989 and 1994.

Occupancy rates in the Bellevue CBD have increased steadily over the past seven years, going from 54.3 percent in 1987 to 62.4 percent in 1994. The biggest jump, 10 percent, occurred between 1989 and 1992. Most of that increase occurred in pay stalls, where occupancy rates rose from 61.2 percent to 77 percent between 1989 and 1994.

Cost

The average costs of 2-hour, daily, and monthly parking in downtown Seattle and Bellevue are:

	2 Hour	Daily	Monthly
Seattle CBD	$4.41	$8.60	$116.30
First Hill	1.65	5.50	64.19
Lower Queen Anne	2.87	4.36	40.95
Bellevue CBD	2.36	6.55	67.47

While average rates increased slightly since 1992 in the Seattle CBD, several zones experienced decreases, especially in their short-term rates. This decrease was even more pronounced on First Hill and lower Queen Anne, particularly in the daily rates, which dropped 16 percent on First Hill and 8.6 percent in lower Queen Anne since 1992.

In Bellevue, the 2-hour and monthly rates increased 10 percent and 7 percent, respectively, since 1992, while the average daily rate remained virtually unchanged from the $6.58 average in 1992.

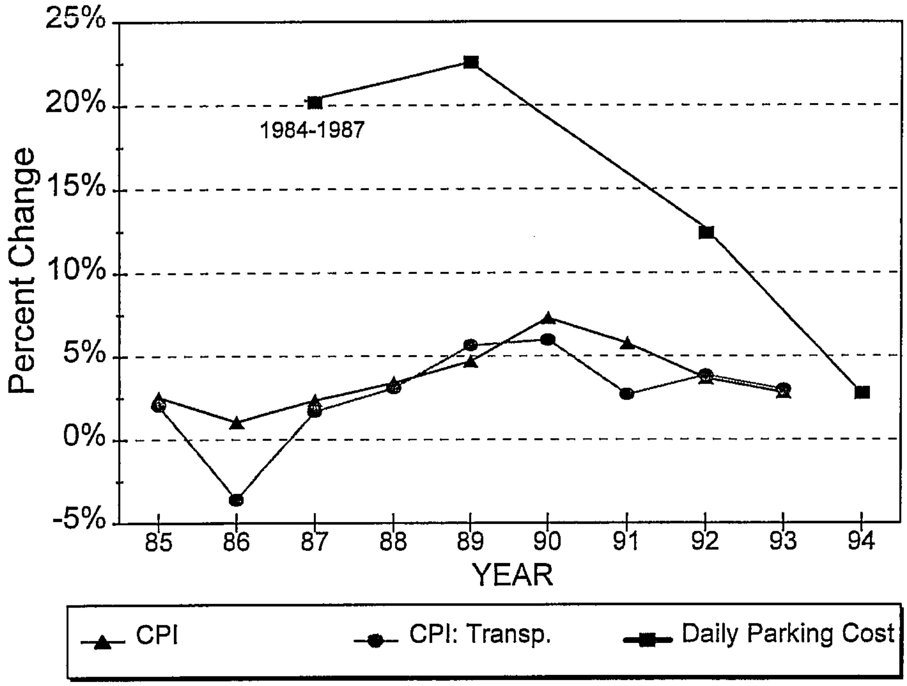
Uses of Parking Data

This report is intended to support the needs of people interested in parking policies. The federal Clean Air Act and state Commute Trip Reduction Act require that local governments and large employers take a closer look at commuter travel to and from our central business districts and formulate policies to reduce the environmental impacts of commuting.

More than half of the air pollution in the central Puget Sound region comes from motor vehicles. With federal and state mandates to reduce air pollution, the region is seeking ways to discourage people from driving alone and to encourage them to use transit, carpools or some other mode of travel. One of the more effective ways to influence people's travel behavior is to increase the cost and/or decrease the supply of parking. The state's Commute Trip Reduction Law requires certain jurisdictions in the region to review their parking policies and, where appropriate, revise them to support commute trip reduction. For these reasons, planners and policy makers can benefit from the information provided by this survey.

Figure 1 offers a comparison of the average daily cost to park in the Seattle CBD since 1984 with the consumer price indices of all goods and services and of the private transportation costs. Parking costs increased an average of 70 percent, from $5.06 to $8.60. Between 1984 and 1993, the overall CPI increased 38.7 percent, while the transportation component only rose 26.7 percent. The transportation component includes the cost of new and used vehicles, fuel, maintenance and repair, and insurance.

Figure 1
Daily Parking Costs and CPI, Percent Change 1984-1994



Note: Daily parking cost is for the Seattle CBD only.
The 1984 parking costs obtained from a Seattle Engineering Department survey.
The Consumer Price Index (1982-94=100) is for the Seattle-Tacoma metropolitan area.

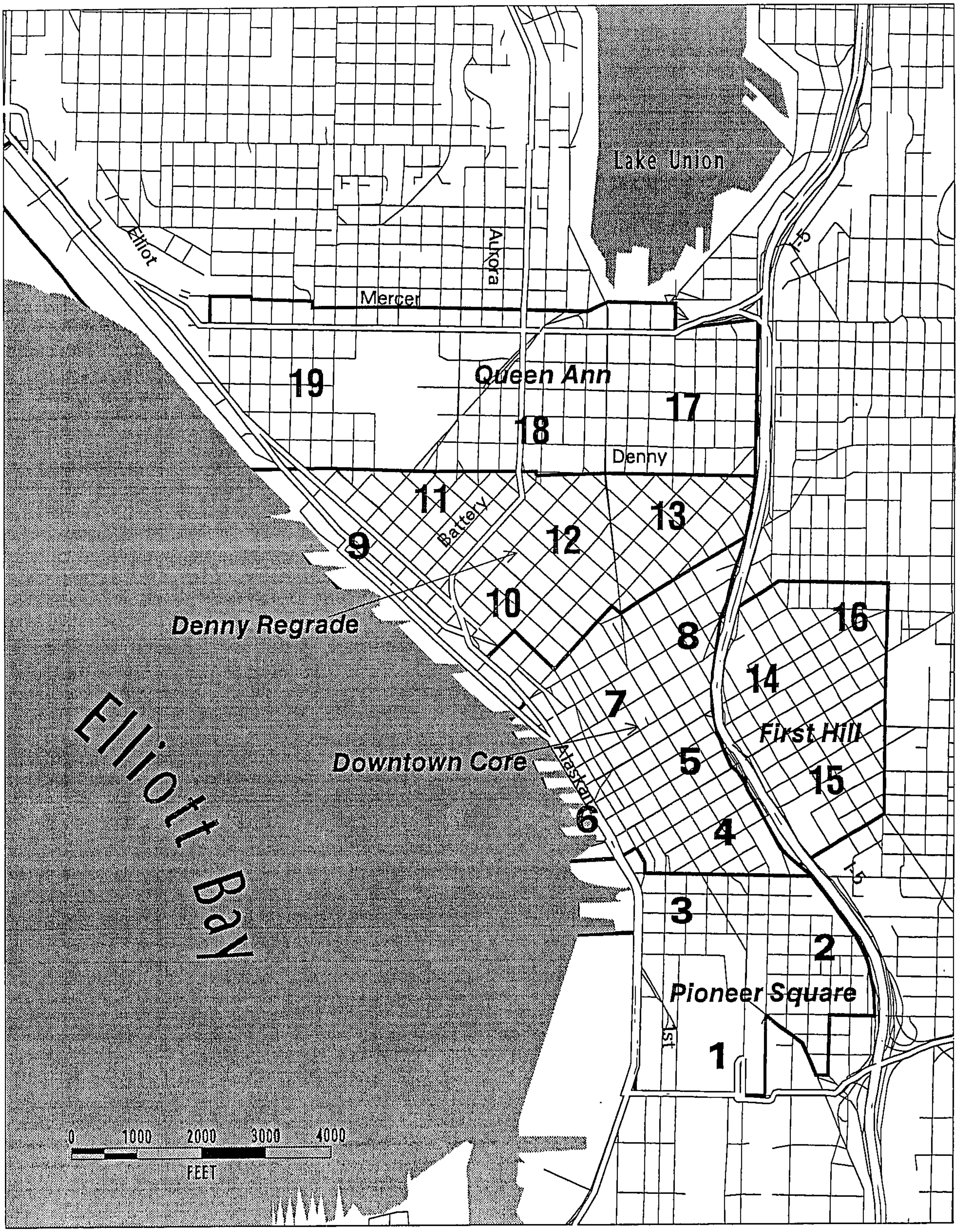
I. INTRODUCTION

This is the fourth regional inventory of off-street parking in Seattle and Bellevue conducted by the Puget Sound Regional Council (PSRC) and its predecessor, the Puget Sound Council of Governments. The Seattle inventory in 1987 covered only the Central Business District (CBD). Beginning in 1989, the study was expanded to include portions of both First Hill and lower Queen Anne. The Bellevue study area remained the same. The Seattle Engineering Department's Transportation Division maintains an inventory of all metered, on-street parking within the City of Seattle.

This report summarizes data by parking zone in four study areas: the Seattle CBD, First Hill and lower Queen Anne within Seattle, and the Bellevue CBD. The 1994 results are compared with results from the previous inventories. (For First Hill and lower Queen Anne, comparisons go back only to 1989, the first year those two areas were inventoried.) The PSRC plans to continue updating the inventory database on a two-year cycle. The data are used in the PSRC's travel forecasting models, particularly in estimating choice of travel mode.

The report is divided into two chapters: A chapter describing the inventory in the Seattle CBD, in First Hill and in lower Queen Anne, and a chapter describing the inventory in downtown Bellevue. Each chapter includes a description of the study area, the methods used for conducting the inventory, and the findings. The findings include data from the 1987, 1989, and 1992 inventories. An appendix describes methodology in more detail.

Figure 2
Seattle Study Area, 1994 Parking Inventory



II. SEATTLE INVENTORY

A. STUDY AREA

The Seattle study area is shown in Figure 1. Zones 1 through 13 comprise the Seattle Central Business District (CBD), bounded by Elliott Bay to the west, Denny Way to the north, Interstate 5 to the east, and Royal Brougham Way to the south.

Zones 14 through 16 are located east of the CBD and comprise the First Hill area. The area is bounded by Interstate 5 to the west, Pine Street to the north, Broadway to the east, and Alder Street to the south.

Zones 17 through 19 comprise lower Queen Anne, which is bounded by Elliott Bay to the west, Denny Way to the south, Interstate 5 to the east, and Roy, Valley and Mercer streets to the north.

In the 1987 study, only zones 1 through 13 were inventoried because this area has usually been considered the "Central Business District" for studying economic and commuting activities in the downtown area. But in 1989, it was decided to add First Hill and lower Queen Anne because these areas are providing parking to persons using the CBD.

B. METHODOLOGY

Data was collected between April 5 and May 13, 1994, using both permanent and temporary PSRC staff. The inventory was conducted Monday through Friday between 9:30 a.m. and 11:30 a.m., and between 1:30 p.m. and 3:30 p.m.

Data collected for each parking lot includes census tract and block number, owner or tenant, address, total stalls, morning and afternoon occupancy, cost for two hours, daily and monthly parking, and type of parking.

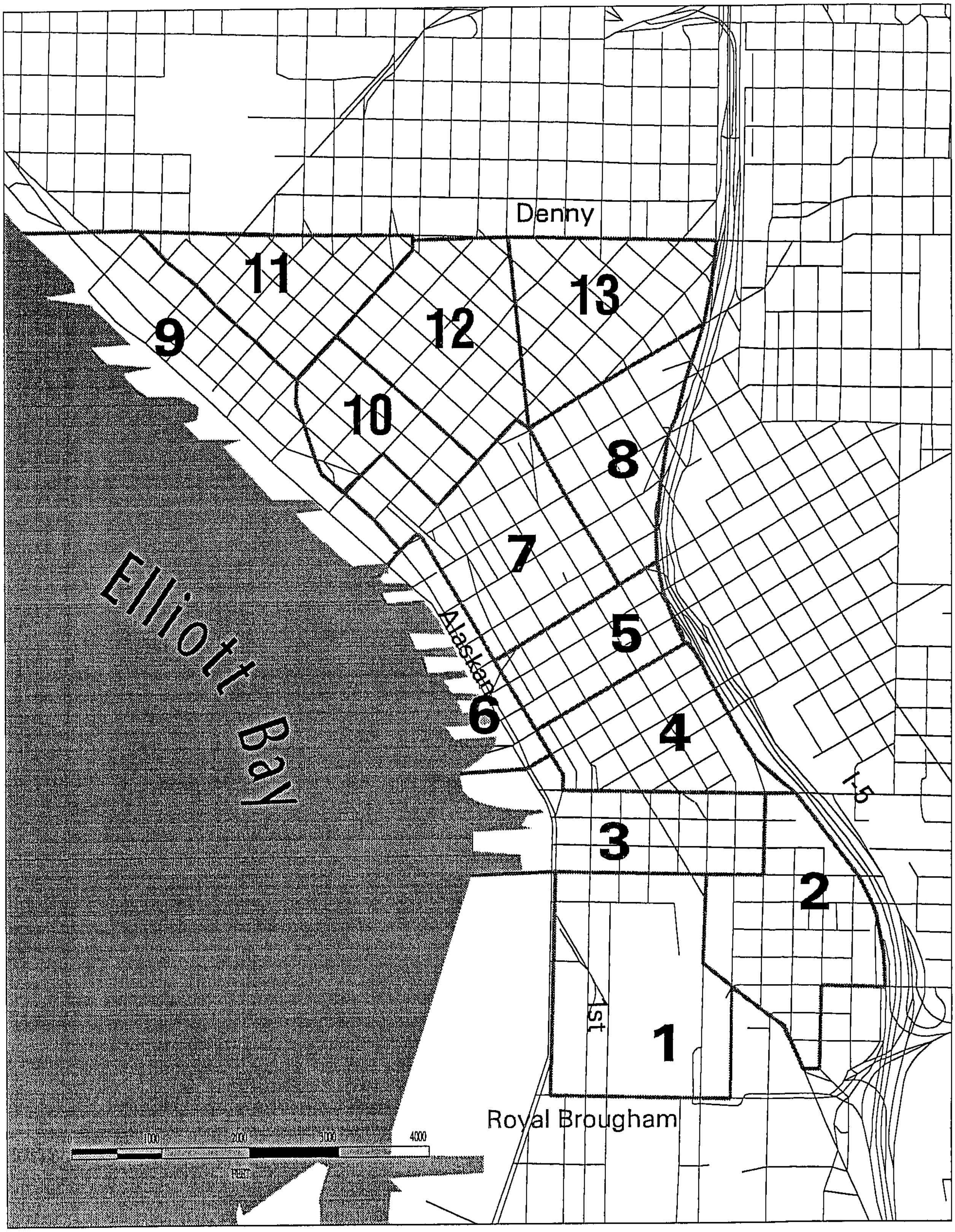
Parking type was used to analyze free parking and was coded as

- C -- free, short-term customer;
- R -- residential; or
- O -- all other.

"Other" includes public pay lots and garages, employee parking, and parking of unknown type.

Residential parking was inventoried only in the Seattle CBD. All data were entered into a database that included the 1992 parking inventory data for comparison. Some figures from the earlier surveys have been changed in this report to correct errors found since the 1992 report was published. Those tables containing revised figures are noted. A more detailed methodology is included as an Appendix to this report.

Figure 3
Seattle CBD Study Area, 1994 Parking Inventory



C. FINDINGS

This section is divided by geography into three parts: Seattle CBD, First Hill, and lower Queen Anne. Each part is further divided into separate discussions of total stalls, occupancy, costs, and parking type.

SEATTLE CBD

Total Stalls

A total of 52,596 parking stalls were counted in the Seattle CBD (Table 1). This represents an increase of 12,501 parking stalls since 1987 when the parking study began. However, the annual increase has not been uniform during this time. The average yearly increase has declined from a high of 2,647 between 1987 and 1989 to 867 between 1992 and 1994. On a percentage basis, the average annual increase went from a high of 6.4% during the 1987 to 1989 period to 1.7% during the 1992 to 1994 period.

Table 1
Seattle CBD: Total Stalls and Annual Pct Change, 1987-1994

Zone	1987 Total Stalls	1989 Total Stalls	87-89 Annual % Change	1992 Total Stalls	89-92 Annual % Change	1994 Total Stalls	92-94 Annual % Change	87-94 Annual % Change
1	3,095	3,184	0.0	3,489	3.1	3,822	4.7	3.1
2	999	992	-0.4	1,131	4.5	1,190	2.6	2.5
3	1,410	1,547	4.7	1,664	2.5	1,635	-0.9	2.1
4	5,729	6,195	4.0	6,731	2.8	7,623	6.4	4.2
5	4,320	4,317	-0.0	4,621	2.3	4,653	0.3	1.1
6	1,070	1,067	-0.1	1,704	16.9	1,791	2.5	7.6
7	4,166	5,964	19.6	6,537	3.1	6,527	-0.1	6.6
8	3,298	4,613	18.3	6,674	13.1	6,739	0.5	10.7
9	4,011	3,894	-1.5	3,881	-0.1	3,857	-0.3	-0.6
10	1,731	1,658	-2.1	1,680	0.4	1,488	-5.9	-2.1
11	2,621	2,994	6.9	2,887	-1.2	2,876	-0.2	1.3
12	3,986	4,267	3.5	4,518	1.9	4,777	2.8	2.6
13	3,659	4,697	13.3	5,346	4.4	5,618	2.5	6.3
TOTAL	40,095	45,389	6.4	50,863	3.9	52,596	1.7	4.0

The growth in parking availability corresponded to increases in office and commercial space in the late 1980s. Between 1987 and 1992, major office buildings and parking structures, including the Washington State Convention Center, Two Union Square, Gateway Tower, Pacific First Centre, Washington Mutual Tower, and the Pike Place Market Garage, contributed several thousand new spaces to the downtown inventory. Between 1992 and 1994, only zones 1 and 4 experienced significant increases in the number of stalls. Most of the increase in zone 4 was accounted for by the completion of a 750-stall parking garage that replaced a 100-stall surface lot at 6th Ave and James St. In zone 1, a 274-stall parking lot was built over the International District bus tunnel station.

In the other CBD zones, parking availability increased slightly or remained essentially unchanged. The one exception was in zone 10, where available parking decreased 11 percent since 1992, from 1,680 to 1,488. The zone lost 70 stalls with the start of construction of a residential building at 1st Avenue and Virginia. Most of the other decreases came through adjustments to 1992 counts, when five lots showed more spaces (anywhere from 10 to 47 more) than could be accounted for in the 1994 count.

Figure 4
Seattle CBD: Parking Availability by Zone, 1987-94

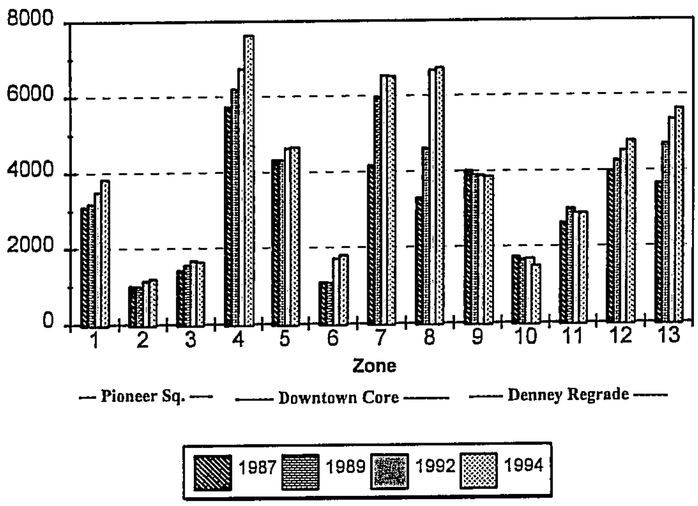


Figure 4 shows the number of stalls in each zone for each of the four inventories between 1987 and 1994, and also groups the zones into three subareas within the CBD. Pioneer Square includes the International District and the Kingdome.

Occupancy

Parking in the CBD had an overall occupancy rate of 74.6 percent, slightly more than the 73.3 percent in 1992, but still lower than the rates measured in the first two surveys (Table 2). This increase reversed the decline in occupancy observed in the previous two surveys. Yet, the overal occupancy rate delined 8.5 percent between 1987 and 1994. This represented an annual decline of 1.3%. This is a consequence, in part, of the usual lag in filling up major new parking facilities. The lowered occupancy rates may also be related to lower occupancy rates of downtown office buildings and level of retail activity.

The areas of the CBD with the strongest growth in occupancy are in the retail core (zones 7 and 8) and the waterfront (zones 6 and 9). This reverses a downward trend in the occupancy rate since 1987. During that time (1987-1992), those zones added more than 6,000 parking stalls through the construction of a number of large parking facilities yet increased occupancy.

The Regrade area (zones 10-13) experienced just the opposite change: large overall increases in occupancy rates between 1989 and 1992 were followed by decreases in every zone since

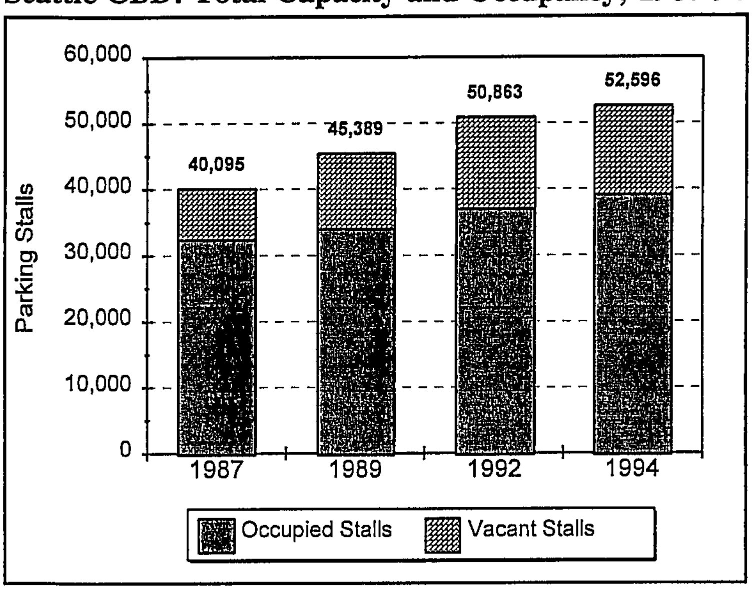
Table 2
Seattle CBD: Occupancy Rates and Annual Pct Change, 1987-1994

Zone	1987 Occupancy Rate (%)	1989 Occupancy Rate (%)	87-89 Annual % Change	1992 Occupancy Rate (%)	89-92 Annual % Change	1994 Occupancy Rate (%)	92-94 Annual % Change	87-94 * Annual % Change
1	48.1	41.9	-6.7	50.7	6.6	53.0	2.2	1.4
2	62.1	60.4	-1.4	57.5	-1.6	55.5	-1.7	-1.6
3	87.6	79.7	-4.6	84.2	1.8	81.2	-1.8	-1.1
4	91.0	82.1	-5.0	76.5	-2.3	79.6	2.0	-1.9
5	94.9	82.3	-6.9	74.4	-3.3	75.2	0.5	-3.3
6	87.3	80.3	-4.1	67.1	-5.8	72.5	3.9	-2.6
7	81.8	84.8	1.8	79.2	-2.3	83.8	2.8	0.3
8	93.8	72.9	-11.9	71.1	-0.8	80.7	6.5	-2.1
9	67.3	79.0	8.4	62.4	-7.6	65.7	2.6	-0.3
10	79.2	71.8	-4.7	70.5	-0.6	66.9	-2.6	-2.4
11	76.0	64.1	-8.1	72.9	4.4	67.4	-3.9	-1.7
12	86.7	73.1	-8.2	74.5	0.6	71.1	-2.3	-2.8
13	85.7	81.1	-2.7	88.0	2.8	81.9	-3.5	-0.6
TOTAL	81.5	75.4	-3.9	73.3	-0.9	74.6	0.9	-1.3

1992. In terms of the average number of vehicles parked, there was an increase of more than 1300 between 1989 and 1992 and a drop of more than 400 between 1992 and 1994. No one factor accounted for this change; many lots experienced a drop in occupancy in the past two years when compared to the previous three years.

Figure 5 shows the change in total stalls and occupancy from 1987 to 1994 for the entire Seattle CBD.

Figure 5
Seattle CBD: Total Capacity and Occupancy, 1987-94



Parking Cost

Parking costs in this report do not reflect "early bird" special rates, employee subsidies (including free parking), or special rates (i.e., carpools). Parking costs were treated in the same manner in previous inventories. Three rates were recorded: 2-hour, daily, and monthly (for a definition of 2-hour parking rates, see the Appendix.) All costs are weighted by total stalls.

2 Hour. Average costs for parking 2 hours are shown in Table 3. Averages ranged from $2.42 in zone 2 to $6.03 in zone 5; the CBD average was $4.41. The annual rate of increase has slowed since the survey began, from a high of 11.6 percent between 1987 and 1989 to the current 1.5 percent.
Daily. Average daily costs are shown in Table 4. Averages ranged from $3.63 in zone 2 to

Table 3
Seattle CBD: Average 2-Hour Costs and Annual Pct Change, 1987-1994

Zone	1987 Weighted Avg	1989 Weighted Avg	87-89 Annual % Change	1992 Weighted Avg	89-92 Annual % Change	1994 Weighted Avg	92-94 Annual % Change	87-94 Annual % Change
1	$2.14	$3.30	24.2	$3.21	-0.9	$3.05	-2.5	5.2
2	$1.97	n.a.	n.a.	$3.05	n.a.	$2.42	-10.9	3.0
3	$2.33	$2.47	3.0	$2.75	3.6	$3.08	5.8	4.1
4	$3.58	$4.40	10.9	$4.76	2.7	$5.11	3.6	5.2
5	$4.22	$4.99	8.7	$5.92	5.9	$6.03	0.9	5.2
6	$3.20	$2.73	-7.6	$4.85	21.1	$4.76	-0.9	5.8
7	$3.18	$3.70	7.9	$4.53	7.0	$4.77	2.6	6.0
8	$3.79	$4.65	10.8	$4.41	-1.8	$4.66	2.8	3.0
9	$2.05	$2.46	9.5	$2.93	6.0	$3.26	5.5	6.9
10	$2.37	$3.05	13.4	$3.81	7.7	$3.64	-2.3	6.3
11	$2.29	$2.42	2.8	$4.39	22.0	$3.17	-15.0	4.8
12	$2.50	$3.53	18.8	$3.70	1.6	$3.78	1.1	6.1
13	$2.64	$3.01	6.8	$3.50	5.2	$3.42	-1.1	3.8
TOTAL	$3.02	$3.76	11.6	$4.28	4.4	$4.41	1.5	5.6

"n.a." -- not applicable; fewer than 5 lots in zone with 2-hour rates.

$13.12 in zone 5; the CBD average was $8.60. Daily rates experienced a similar trend as two-hour costs: the average for the CBD went up 10.7 percent annually between 1987 and 1989, 4.0 percent between 1989 and 1993, and only 1.4 percent annually between 1992 and 1994. Figure 6 shows the geographic distribution of average daily rates.

Monthly. Average monthly parking costs are shown in Table 5. Averages ranged from $60.14 in zone 9 to $149.74 in zone 5; the CBD average was $116.30. Average monthly costs in the CBD experienced a small increase between 1992 and 1994 after a period of strong growth between 1989 and 1992 (table 5). The 1.1 percent annual inrease between 1987 and 1989 stands out as the exception to the trend in parking costs. However, the 1987 CBD average of $91.32 is probably an overestimate; fewer monthly rates were obtained than in later inventories and thus the weighted averages were less representative of the area. This was particularily true in Pioneer Square.

The zones with the highest average daily and monthly parking costs are in the office and retail core (zones 4, 5, 7 and 8). These zones have consistently contained the highest posted rates

Table 4
Seattle CBD: Average Daily Costs and Annual Pct Change, 1987-1994

Zone	1987 Weighted Avg	1989 Weighted Avg	87-89 Annual % Change	1992 Weighted Avg	89-92 Annual % Change	1994 Weighted Avg	92-94 Annual % Change	87-94 Annual % Change
1	$4.24	$3.88	-4.3	$4.37	4.0	$4.44	0.8	0.7
2	$3.43	n.a.	n.a.	$3.42	n.a.	$3.63	3.0	0.8
3	$4.71	$5.29	6.0	$5.42	0.8	$5.57	1.4	2.4
4	$7.82	$10.30	14.8	$11.23	2.9	$10.93	-1.3	4.9
5	$8.58	$9.93	7.6	$11.31	4.4	$12.12	3.5	5.1
6	$6.15	$8.00	14.1	$7.51	-2.1	$8.14	4.1	4.1
7	$6.48	$8.48	14.4	$10.09	6.0	$10.27	0.9	6.8
8	$7.15	$7.82	4.6	$8.67	3.5	$9.65	5.5	4.4
9	$4.10	$5.28	13.5	$6.82	8.9	$6.21	-4.6	6.1
10	$4.16	$5.41	14.0	$7.02	9.1	$6.39	-4.6	6.3
11	$5.25	$6.35	10.0	$7.01	3.4	$6.55	-3.3	3.2
12	$5.04	$6.71	15.4	$7.20	2.4	$7.56	2.5	6.0
13	$4.72	$5.68	9.7	$5.80	0.7	$5.13	-6.0	1.2
TOTAL	$6.08	$7.45	10.7	$8.37	4.0	$8.60	1.4	5.1

"n.a." -- not applicable; fewer than 5 lots in zone with daily rates.

Table 5
Seattle CBD: Average Monthly Costs and Annual Pct Change, 1987-1994

Zone	1987 Weighted Avg	1989 Weighted Avg	87-89 Annual % Change	1992 Weighted Avg	89-92 Annual % Change	1994 Weighted Avg	92-94 Annual % Change	87-94 Annual % Change
1	$82.89	$65.27	-11.3	$68.17	1.5	$61.87	-4.7	-4.1
2	n.a.	$47.56	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3	$79.02	$83.13	2.6	$109.02	9.5	$93.52	-7.4	2.4
4	$88.47	$98.29	5.4	$123.51	7.9	$128.78	2.1	5.5
5	$110.47	$119.88	4.2	$139.89	5.3	$149.74	3.5	4.4
6	$101.41	$102.63	0.6	$106.76	1.3	$109.95	1.5	1.2
7	$81.65	$104.72	13.2	$120.23	4.7	$123.79	1.5	6.1
8	$107.81	$118.72	4.9	$128.80	2.8	$134.15	2.1	3.2
9	$50.00	$45.64	-4.5	$63.41	11.6	$60.14	-2.6	2.7
10	$70.00	$71.84	1.3	$96.92	10.5	n.a.	n.a.	n.a.
11	$74.55	$65.53	-6.2	$77.81	5.9	$94.33	10.1	3.4
12	$81.32	$87.24	3.6	$108.43	7.5	$108.61	0.1	4.2
13	$76.48	$77.35	0.6	$82.84	2.3	$84.44	1.0	1.4
TOTAL	$91.32	$93.34	1.1	$111.43	6.1	$116.30	2.2	3.5

n.a." -- not applicable; fewer than 5 lots in zone with monthly rates.

Figure 6
Seattle: Average Daily Parking Costs, 1994

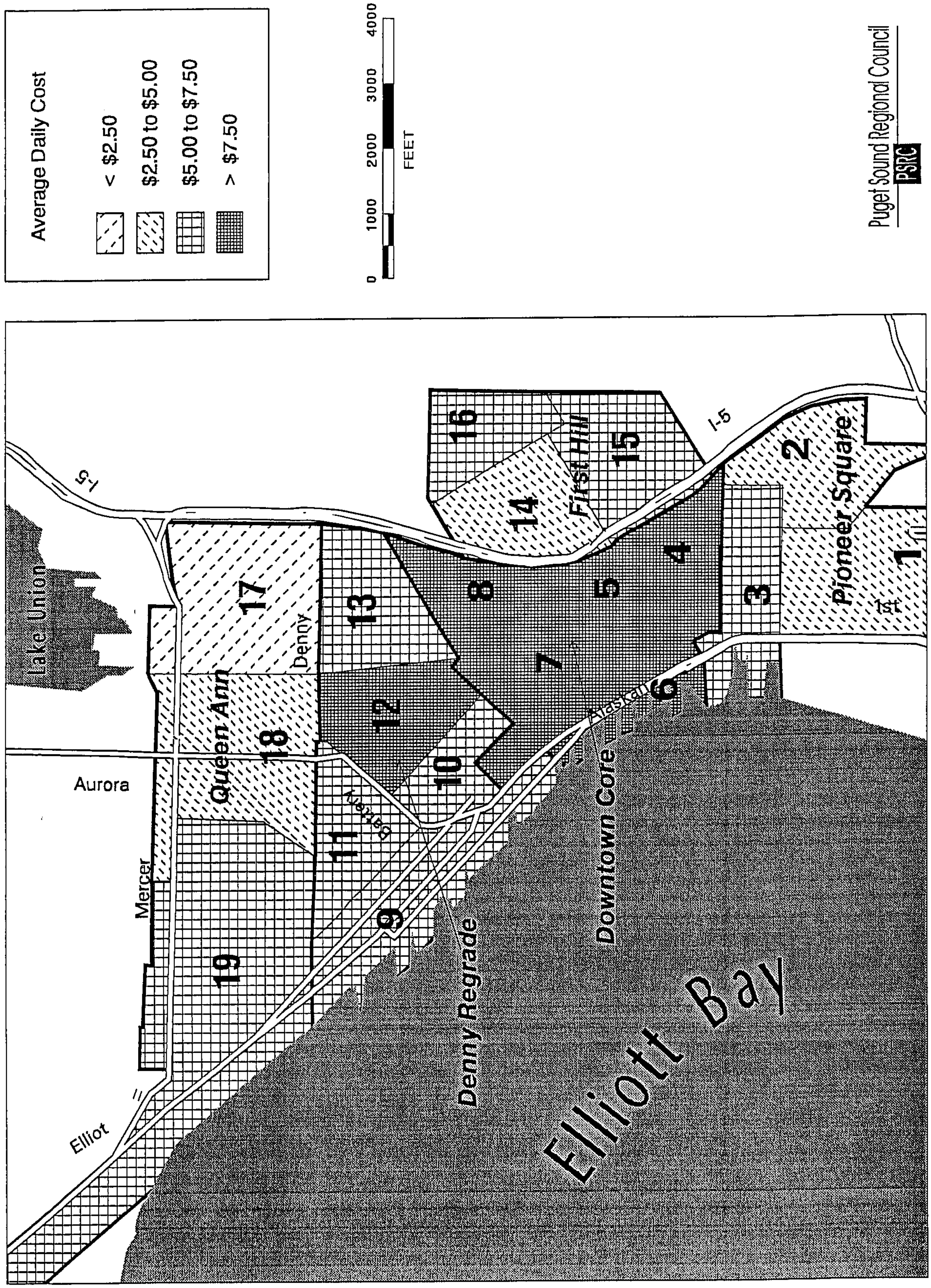
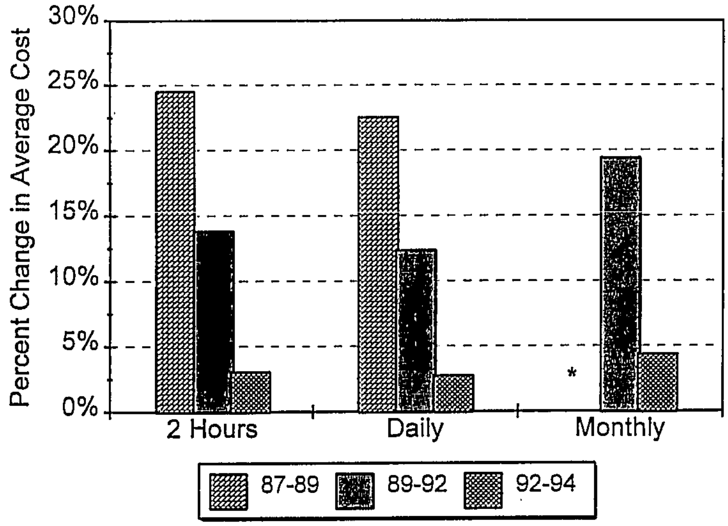


Figure 7
Seattle CBD: Change in Avg. Parking Costs, 1987-94



* There were insufficient monthly parking data in 1987

since 1987. This area includes large new office towers with higher-priced parking garages that have a marked influence on the average cost figures. For example, the average parking costs in zone 5 are influenced by large office towers such as the First Interstate, Bank of California, 2nd & Seneca, and 1001 4th Avenue buildings. In zone 4, the Columbia Center and Seafirst Fifth Avenue Plaza have higher than average costs, while the Washington Mutual Tower and Westlake Center do so in zone 7.

Overall, parking costs have increased in the CBD since 1992 but not as sharply as they rose between 1987 and 1992 (see Figure 7). Table 6 shows, for each parking rate, the percent of all pay lots that lowered prices between inventories, the percent that raised prices, and the percent that kept prices the same, as well as the average decrease and increase in dollars.

Table 6
Seattle CBD: Pct Pay Lots that Raised or Lowered Prices, & Average Price Change in Dollars, 1987-94

	1992-1994					
	2-Hour		Daily		Monthly	
Down	10.1%	-$1.52	22.3%	-$1.38	9.0%	-$17.82
Up	30.0%	$1.06	25.2%	$1.44	47.5%	$12.12
No change	59.9%		52.5%		43.4%	

Most lots kept their 2 hour and daily rates the same but raised their monthly rates (Table 6). A significant percentage of lots raised their short-term rates.

Although very few lots had lower monthly rates in 1994 compared to 1992, for those that did cut rates, the average decrease was $17.82 as opposed to an average increase of $12.12. For the 2-hour rate, the average decrease was higher than the average increase.

Parking Type

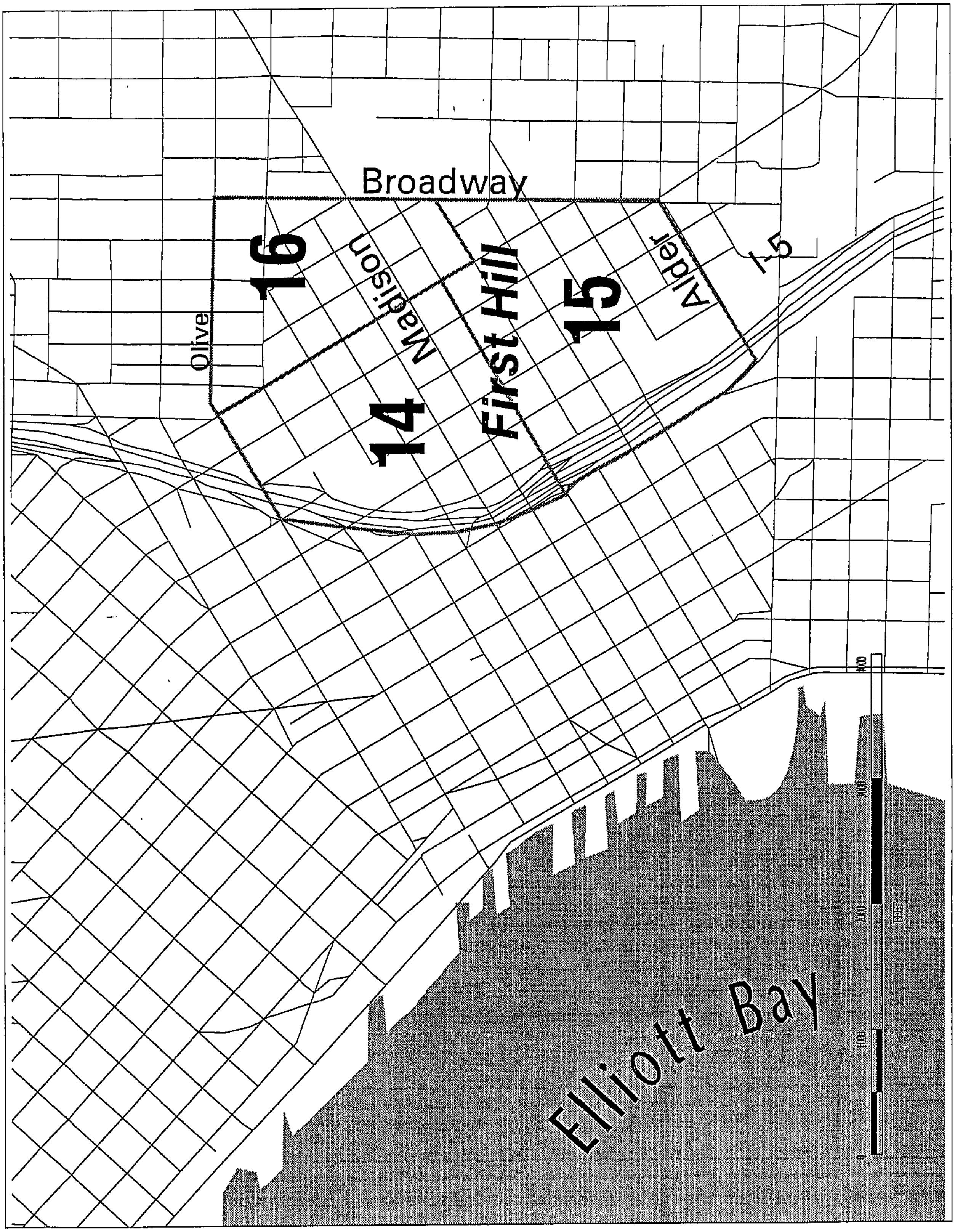
Table 7 shows by zone the number of pay and free stalls, and the percent of free stalls by type; "Other" free parking is primarily employee parking. "Pay" parking includes any lot that imposes any type of short-term or long-term fee for parking and may include some stalls that are free to use at certain times of the day, or for certain people or purposes. "Missing Stalls" include lots where no determination about cost can be made. The percentage of lots with missing cost information is highest in those zones with numerous small lots. In zones 9 and 11, based on past inventories, we assume that about half of the stalls missing cost information are free.

The proportion of free stalls is highest in the International District (zone 2) with 42.4 percent free, followed by Denny Regrade (zones 10 to 12), with between 13 and 26 percent free. In the entire CBD, 5.8 percent of the 52, 596 total stalls were free.

Table 7
Seattle CBD: Pay and Free Parking Stalls, 1994

Zone	Total Stalls	Pay Stalls	Free Stalls				Missing Stalls
			Total	% Free Stalls by Type			
				Customer	*Residential*	*Other*	
1	3,822	3,384	160	*33.1%*	*66.9%*	*0.0%*	278
2	1,190	322	504	*68.1%*	*23.2%*	*8.7%*	364
3	1,635	1,439	91	*26.4%*	*73.6%*	*0.0%*	105
4	7,623	6,803	107	*86.9%*	*13.1%*	*0.0%*	713
5	4,653	4,628	0	*n.a.*	*n.a.*	*n.a.*	25
6	1,791	1,514	32	*78.1%*	*21.9%*	*0.0%*	245
7	6,527	6,142	27	*66.7%*	*0.0%*	*33.3%*	358
8	6,739	6,606	119	*33.6%*	*66.4%*	*0.0%*	14
9	3,857	2,370	196	*36.2%*	*40.8%*	*23.0%*	1,291
10	1,488	925	389	*10.3%*	*14.4%*	*75.3%*	174
11	2,876	925	445	*39.6%*	*13.9%*	*46.5%*	1,506
12	4,777	3,671	639	*83.6%*	*12.4%*	*4.1%*	467
13	5,257	3,909	358	*88.8%*	*11.2%*	*0.0%*	1,351
Total	52,235	42,638	3,067	*56.6%*	*23.1%*	*20.3%*	6,891

Figure 8
First Hill Study Area, 1994 Parking Inventory



FIRST HILL

Total Stalls

Only that portion of First Hill that provides parking for the CBD or includes the major medical complexes is included in the First Hill study area (see Figure 8). It includes the following major medical facilities: Swedish Hospital, Virginia Mason Hospital, Harborview Medical Center, and the Fred Hutchinson Cancer Research Center. It also has several large apartment buildings, and its eastern edge borders on Seattle University. This area was not surveyed in 1987.

Table 8
First Hill: Total Stalls and Annual Pct Change, 1989-94

Zone	1989 Total Stalls	1992 Total Stalls	89-92 Annual % Change	1994 Total Stalls	92-94 Annual % Change	89-94 Annual % Change
14	2,657	2,738	1.0	2,846	2.0	1.0
15	3,232	3,360	1.3	3,786	6.2	2.3
16	2,350	2,462	1.6	2,979	10.0	3.4
TOTAL	8,239	8,560	1.3	9,611	6.0	2.2

A total of 9,611 parking stalls was inventoried on First Hill (Table 8). This is 1,051 more stalls than in 1992, an annual increase of 6 percent. Much of this increase is due to the construction of a 500+ parking garage by Swedish Hospital in zone 16.

Occupancy

The average occupancy ranged from 68.1 percent in zone 16 to 82.3 percent in zone 14. Occupancy for the entire First Hill area was 76.3 percent, down from 78.4 percent in 1992 (Table 9). Much of the decrease took place in zone 16, where the majority of the lots experienced drops in occupancy.

Table 9
First Hill: Occupancy Rates & Annual Pct Change, 1989-94

Zone	1989 Occ. Rate (%)	1992 Occ. Rate (%)	89-92 Annual % Change	1994 Occ. Rate (%)	92-94 Annual % Change	89-94 Annual % Change
14	88.0	81.2	-2.6	82.3	0.7	-0.9
15	77.6	79.0	0.6	78.3	-0.4	0.1
16	76.4	74.7	-0.8	68.1	-4.5	-1.6
TOTAL	80.6	78.4	-0.9	76.3	-1.4	-0.8

First Hill and the CBD have similar occupancy rates (76.3% and 74.6%, respectively). This may be due to First Hill's employment density and its proximity to the CBD. That is, some downtown workers take advantage of lower parking costs, park on First Hill, and walk to their downtown work sites .

Table 10
First Hill: Average 2-Hour Costs and Annual Pct Change, 1989-1994

Zone	1989 Weighted Avg	1992 Weighted Avg	89-92 Annual Change	1994 Weighted Avg	92-94 Annual Change	89-94 Annual Change
14	$1.93	$1.97	0.7	$2.36	9.5	4.1
15	$1.77	$2.19	7.4	$1.49	-17.5	-3.4
16	$1.35	$1.42	1.7	$1.34	-2.9	-0.1
TOTAL	$1.73	$1.94	3.9	$1.65	-7.8	-0.9

Average parking costs on First Hill are listed in Tables 10-12. The average cost for two-hour parking was $1.65, a drop of nearly 15 percent since 1992 and one-third the average for the Seattle CBD ($4.41). This decrease is due to Swedish Hospital, a major provider of parking in the area, which lowered its short term parking rates. This obscured the overall stability of rates over the past two years among the other parking providers in the zone. Nearly three-quarters (73.3 percent) of the lots providing hourly parking charged the same two-hourly rate in 1994 as in 1992 (Table 13).

Table 11
First Hill: Average Daily Costs and Annual Pct Change, 1989-1994

Zone	1989 Weighted Avg	1992 Weighted Avg	89-92 Annual Change	1994 Weighted Avg	92-94 Annual Change	89-94 Annual Change
14	$4.86	$4.57	-2.0	$4.82	2.7	-0.2
15	$5.59	$7.08	8.2	$5.55	-11.5	-0.1
16	$6.75	$9.10	10.5	$6.13	-17.9	-1.9
TOTAL	$5.54	$6.55	5.7	$5.50	-8.4	-0.1

The average daily parking cost was $5.50, a decrease of 16 percent since 1992. Like the two-hour rates, the dropping of short-term rates by Swedish Hospital was a major contributor to the area-wide decrease. On the other hand, there was more overall movement of daily rates than for two-hourly rates. Of all lots charging a daily rate, 25.8 percent raised rates while 32.3 percent lowered them between 1992 and 1994. The average decrease was four times greater than the average increase (see Table 13).

Table 12
First Hill: Average Monthly Costs and Annual Pct Change, 1989-1994

Zone	1989 Weighted Avg	1992 Weighted Avg	89-92 Annual Change	1994 Weighted Avg	92-94 Annual Change	89-94 Annual Change
14	$68.76	$76.41	3.6	$76.55	0.1	2.2
15	$39.77	$52.96	10.0	$60.10	6.5	8.6
16	$42.64	$52.25	7.0	$60.48	7.6	7.2
TOTAL	$46.86	$59.49	8.3	$64.19	3.9	6.5

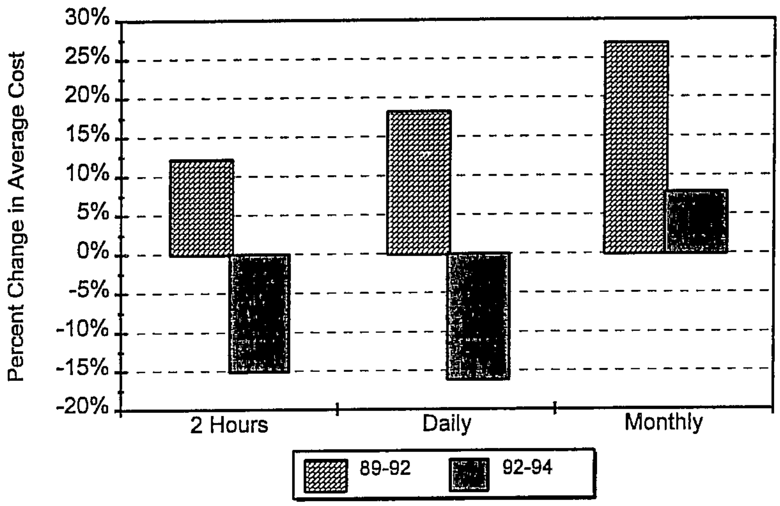
The monthly average cost was $64.19, but, unlike short-term costs, increased since 1992. Half of all lots raised monthly rates in the area. These lots raised rates an average of $14.5 (Table 13). Only two small lots had a lower monthly rate than in 1992.

Figure 9 illustrates changes in average parking costs on First Hill.

Table 13
First Hill: Percent of Pay Lots that Changed Prices, and Average Price Change in Dollars, 1989-1994

	1992-1994					
	2-Hour		Daily		Monthly	
Down	13.3%	-$1.00	32.3%	-$2.58	7.1%	-$5.95
Up	13.3%	$0.88	25.8%	$0.69	50.0%	$14.50
No change	73.3%		41.9%		42.9%	

Figure 9
First Hill: Changes in Average Parking Costs, 1989-1994



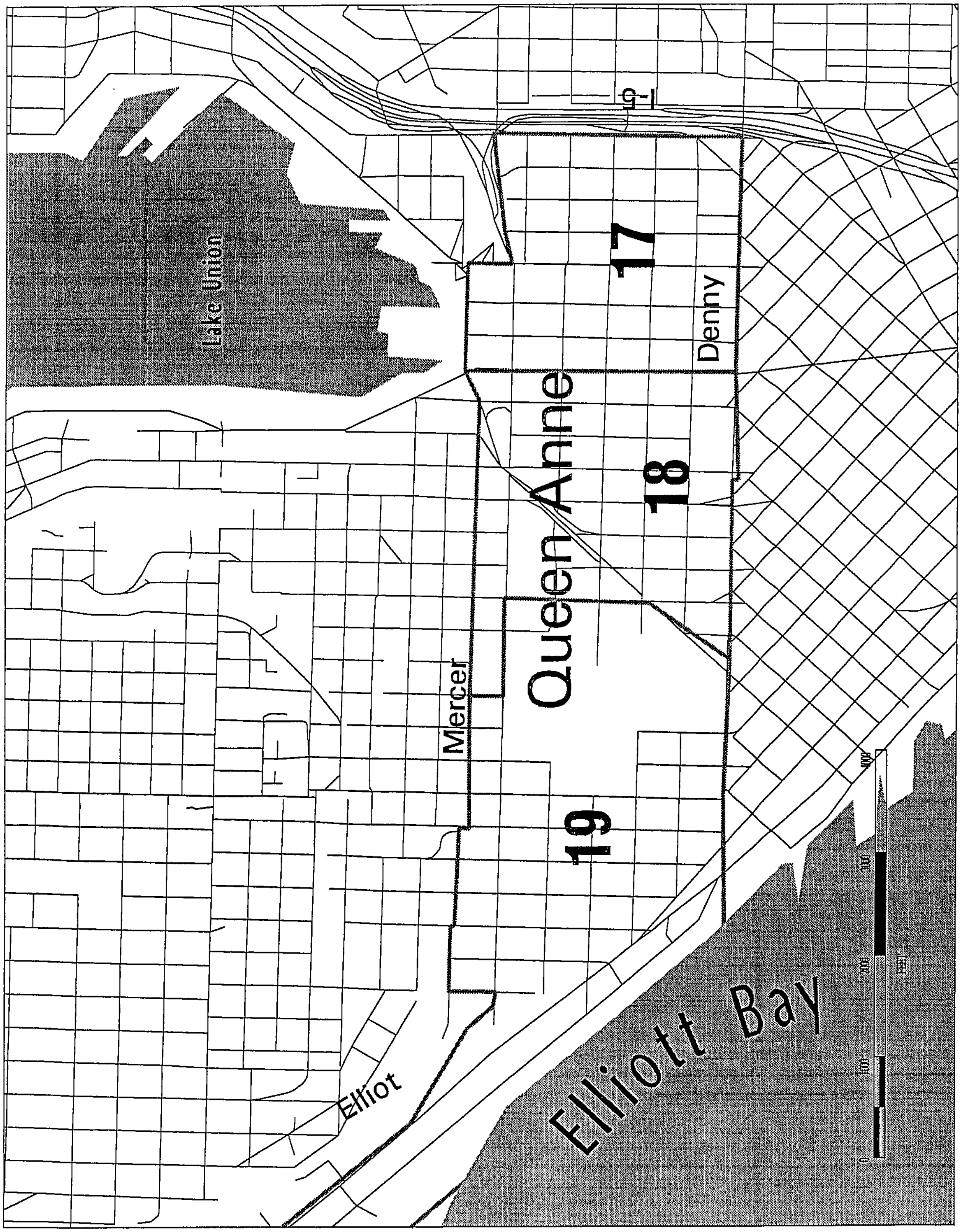
Parking Type

The number of stalls by parking type is displayed in Table 14. "Other" free parking is primarily employee parking. "Missing Stalls" are stalls where no determination can be made whether or not they are free. Free parking is available in less the 10 percent of parking stalls, not too different from the 5.8 percent in the CBD. Most of the free parking is for customers. There was not much variation in the proportion of free parking among the three zones.

Table 14
First Hill: Pay and Free Parking Stalls, 1994

Zone	Total Stalls	Pay Stalls	Free Stalls Total	% Free Stalls by Type: *Customer*	% Free Stalls by Type: *Other*	Missing Stalls
14	2,846	2,093	304	*73.7%*	*26.3%*	449
15	3,786	3,280	157	*58.6%*	*41.4%*	349
16	2,979	2,394	272	*82.0%*	*18.0%*	313
Total	9,611	7,767	733	*73.5%*	*20.1%*	1,111

Figure 10
Queen Anne Study Area, 1994 Parking Inventory



LOWER QUEEN ANNE

Total Stalls

The lower Queen Anne area extends from I-5 on the east to Elliott Bay on the west, and from Denny Way on the south to Roy, Valley, and Mercer streets on the north (see Figure 10). Seattle Center dominates the western portion, with several mid-rise office buildings in the southern end toward Denny Way. Zones 17 and 18 have a mix of residential, commercial, and some industrial uses. Aurora Avenue (State Highway 99) runs through zone 18.

Table 15
Queen Anne: Total Stalls and Annual Pct Change, 1989-94

Zone	1989 Total Stalls	1992 Total Stalls	89-92 Annual % Change	1994 Total Stalls	92-94 Annual % Change	89-94 Annual % Change
17	3,336	3,796	4.4	4,081	3.7	2.9
18	5,225	5,624	2.5	5,807	1.6	1.5
19	5,738	6,239	2.8	6,208	-0.2	1.1
TOTAL	14,299	15,659	3.1	16,096	1.4	1.7

There were 16,096 parking stalls counted in lower Queen Anne (Table 15). This is a 1.4 percent annual increase since 1992, less than half the 3.1 annual increase between 1989 and 1992. There were no major deletions or additions to the inventory.

Occupancy

Occupancy for the entire lower Queen Anne area was 53.3 percent (Table 16), slightly less than the 1992 occupancy rate of 57.6 but much less than the 74.6 percent rate for the Seattle CBD. The low occupancy rates may be attributed to the presence of many parking facilities that cater to events at the Seattle Center. Because most major events occur on evenings and weekends, occupancy was lower on weekdays when the study was conducted.

Table 16
Queen Anne: Occupancy Rates and Annual Pct Change, 1989-94

Zone	1989 Occ. Rate (%)	1992 Occ. Rate (%)	89-92 Annual % Change	1994 Occ. Rate (%)	92-94 Annual % Change	89-94 Annual % Change
17	63.6	69.1	2.8	63.8	-3.9	0.0
18	45.2	47.2	1.4	41.9	-5.7	-1.1
19	64.4	56.1	-4.5	57.0	0.8	-1.7
TOTAL	57.2	57.5	0.1	53.3	-3.7	-1.0

Parking Costs

As shown in Tables 17 and 18, 2-hour parking costs have gone up an average of 23 cents to \$2.87, a 4.3 percent annual increase, while average daily costs have dropped 41 cents to

Table 17
Queen Anne: Average 2-Hour Costs and Annual Pct Change, 1989-1994

Zone	1989 Weighted Avg	1992 Weighted Avg	89-92 Annual Change	1994 Weighted Avg	92-94 Annual Change	89-94 Annual Change
17	$1.43	$1.62	4.2	$1.61	-0.3	2.4
18	$2.68	$2.79	1.3	$2.99	3.5	2.2
19	$1.95	$2.85	13.5	$3.02	2.9	9.1
TOTAL	$2.06	$2.64	8.6	$2.87	4.3	6.9

Table 18
Queen Anne: Average Daily Costs and Annual Pct Change, 1989-1994

Zone	1989 Weighted Avg	1992 Weighted Avg	89-92 Percent Change	1994 Weighted Avg	92-94 Percent Change	89-94 Percent Change
17	$2.18	$2.51	4.8	$2.47	-0.8	2.5
18	$3.52	$4.73	10.4	$4.21	-5.7	3.6
19	$3.89	$5.40	11.6	$5.03	-3.5	5.3
TOTAL	$3.54	$4.77	10.5	$4.36	-4.4	4.3

$4.36, a 4.4 percent annual decrease. However, as with First Hill, a drop in the daily rate for one large parking facility, in this case the Seattle Center Parking Garage, obscured the fact that half of the pay lots in the area did not change short-term parking rates between 1992 and 1994. Of the rest, approximately equal numbers raised their short-term rates as lowered them (see Table 20).

Lower Queen Anne is the only major area in the Seattle survey to have a drop in monthly rates since 1992. The average monthly costs dropped 3.2 percent, to $40.95 (Table 19).

Daily and monthly averages for all of lower Queen Anne remain the lowest in the survey area. Zone 17, between Lake Union and Denny Way, which has the highest concentration of industrial and manufacturing land uses, has the lowest daily rate ($2.47) and the lowest monthly rate ($25.67) of any zone.

Figure 11 shows the percent change in average parking costs from 1987 to 1994.

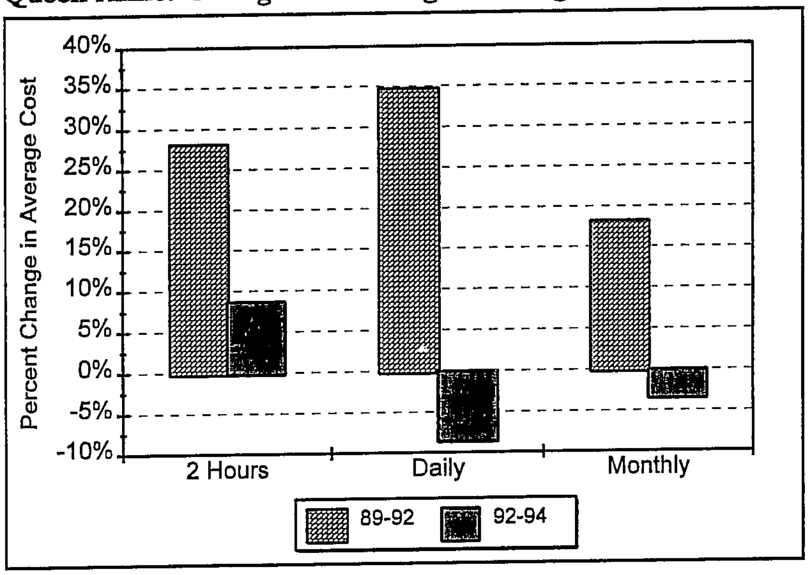
Table 19
Queen Anne: Average Monthly Costs and Annual Pct Change, 1989-1994

Zone	1989 Weighted Avg	1992 Weighted Avg	89-92 Annual Change	1994 Weighted Avg	92-94 Annual Change	89-94 Annual Change
17	$26.87	$29.09	2.7	$25.67	-6.1	-0.9
18	$34.67	$37.11	2.3	$40.02	3.8	2.9
19	$41.68	$54.84	9.6	$53.35	-1.4	5.1
TOTAL	$35.79	$42.30	5.7	$40.95	-1.6	2.7

Table 20
Queen Anne: Percent of Pay Lots that Changed Prices, and Average Price Change in Dollars, 1992-1994

	1992-1994					
	2-Hour		Daily		Monthly	
Down	29.4%	-$1.03	21.3%	-$1.36	16.7%	-$8.41
Up	21.6%	$1.00	23.0%	$1.08	37.5%	$11.33
No change	49.0%		55.7%		45.8%	

Figure 11
Queen Anne: Changes in Average Parking Costs, 1989-1994



Parking Type

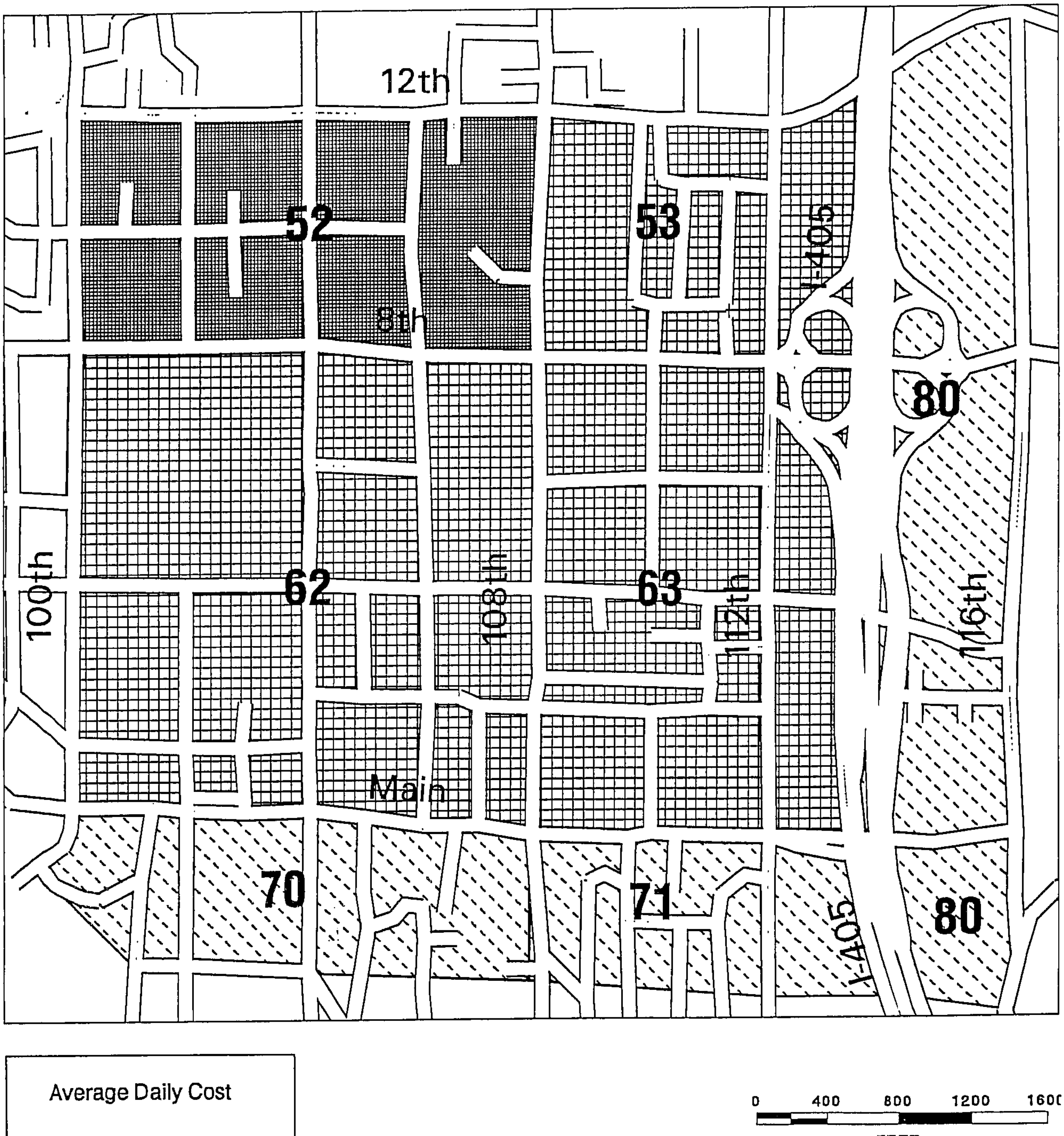
Table 21 shows by zone the number of pay stalls and free stalls, and percent of free stalls by type; "Other" free parking is primarily employee parking. We do not know whether "Missing Stalls" are primarily pay or free parking. Of the 16,051 stalls inventoried, at least19.6 percent are free. More than one-third of all stalls (39.2 percent) were missing cost information, three times as much as in the CBD or First Hill. The percentage is high in these zones because there are numerous small lots for which no ownership or any cost information could be determined. This is particularly true in zone 17 south of Lake Union, an area

Table 21
Queen Anne: Pay and Free Parking Stalls, 1994

			Free Stalls			
	Total	Pay		% Free Stalls by Ty		Missing
Zone	Stalls	Stalls	Total	*Customer*	*Other*	Stalls
17	4,08	1,33	941	*58.6%*	*41.4%*	1,80
18	5,80	2,74	1,26	*69.0%*	*31.0%*	1,79
19	6,16	2,58	946	*35.9%*	*64.1%*	2,68
Total	16,05	6,65	3,14	*55.9%*	*42.0%*	6,28

dominated by small businesses and light manufacturing. The Regional Council estimates that in zone 17, most stalls with missing information are free. In zone 19, around the Seattle Center, about half of such stalls are free. As with First Hill, most of the free parking is for customers.

Figure 12
Bellevue CBD Study Area, 1994 Parking Inventory



Puget Sound Regional Council
PSRC

III. BELLEVUE INVENTORY

A. STUDY AREA

The Bellevue study area is bounded on the west by 100th Ave NE; on the north by NE 12th; on the east by 116th Ave NE; and on the south by Main Street (Figure 12). The survey included all businesses on the south side of Main Street that have access to that street and are an integral part of the downtown business district.

The CBD is divided into seven zones. The streets dividing the zones are Main Street, NE 8th Street, 108th Ave NE, and Interstate 405. In the three inventories before 1994, there were six zones; zone 80 (between I-405 and 116th Avenue NE) was part of zones 62 and 63, with NE 8th being the dividing line. In order to allow the data to be grouped in a more logical way, the PSRC decided that the area to the east should be a separate zone. Creating this new zone provides a more accurate picture of parking throughout the downtown area. Data from the previous inventories were adjusted to match the new zonal structure.

Figure 12 illustrates the boundaries of the seven zones as well as the average daily parking cost for each zone.

B. METHODOLOGY

Data collection was conducted between May 16 and May 23, 1994, with the same staff used to conduct the Seattle inventory. The inventory was conducted Monday through Friday between 9:30-11:30 AM and between 1:30-3:30 PM.

Where it was not possible to physically count the spaces and cars in a particular lot, information was obtained from parking attendants, if present, or from the owner of the lot. This was necessary only for a few pay parking garages, where operators would not allow entry to PSRC staff. Because of the large size of the Bellevue Square parking facilities, the PSRC relied on statistics concerning capacity and usage that are maintained by Bellevue Square management.

Data collected for each parking lot includes census tract and block number, parcel number[1], owner or manager, address, total stalls, morning and afternoon occupancy, cost for two hour, daily, and monthly parking, and type of parking.

Parking type was used to analyze free parking and classified as:

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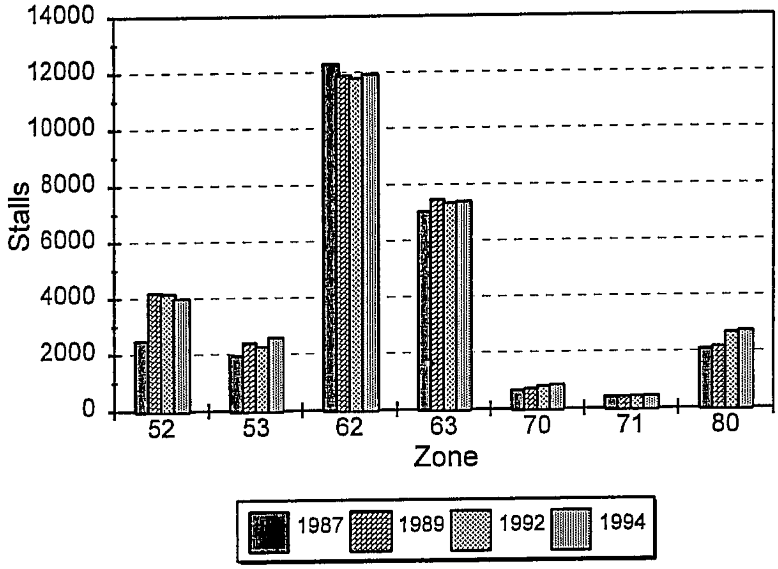
[1] Parcel maps for identifying the exact location and parcel number of each lot were supplied by the City of Bellevue.

- C -- free customer;
- E -- employee;
- R -- reserved, often by permit; or
- O -- pay public parking.

C. FINDINGS

Figure 13
Bellevue CBD: Parking Availability by Zone, 1987-1994



Total Stalls

Table 22 presents the total number of parking stalls by zone and shows the percent change between successive inventories, and between the first inventory (1987) and the most recent (1994). The number of stalls by zone for each inventory is illustrated in Figure 13.

The total number of parking stalls counted was 29,911, slightly more than in 1992 (29,447 stalls). After a spurt of new office tower construction in the late 1980s, which provided a number of large parking facilities, the inventory of parking stalls in downtown Bellevue stabilized, with an annual growth rate since 1989 of under one percent. The only significant new parking facilities to be added since 1992 are the Bellevue Convention Center (Meydenbauer Center, zone 63) and the new public library (zone 53). In contrast, total parking capacity increased at an annual rate of 4.2 percent between 1987 and 1989, when the construction of Bellevue Place and Quadrant Plaza added hundreds of new parking spaces to the CBD.

Despite scores of small to medium-sized surface lots spread throughout the CBD, a few large parking structures account for approximately half of all parking. These include Bellevue Square (5,000 spaces in zone 62), Bellevue Place-Hyatt Regency (1,500 spaces, zone 52), and Plaza Center at NE 8th and 108th NE (1,100 spaces, zone 53) (Figure 12). Many of these

Table 22
Bellevue CBD: Total Stalls and Annual Pct Change, 1987-1994

Zone	1987 Total Stalls	1989 Total Stalls	87-89 Annual % Change	1992 Total Stalls	89-92 Annual % Change	1994 Total Stalls	92-94 Annual % Change	87-94 Annual % Change
52	2,489	4,201	29.9	4,168	-0.3	3,991	-2.1	7.0
53	1,959	2,409	10.9	2,254	-2.2	2,583	7.0	4.0
62	12,298	11,901	-1.6	11,789	-0.3	11,933	0.6	-0.4
63	7,048	7,470	3.0	7,350	-0.5	7,392	0.3	0.7
70	657	706	3.7	808	4.6	852	2.7	3.8
71	406	405	-0.1	416	0.9	429	1.6	0.8
80	2,086	2,161	1.8	2,662	7.2	2,731	1.3	3.9
TOTAL	26,943	29,253	4.2	29,447	0.2	29,911	0.8	1.5

facilities are office towers along 108th NE. East of I-405, Overlake Hospital on the north and the municipal complex (city hall, police department) on the south account for half of all parking in zone 80.

Occupancy

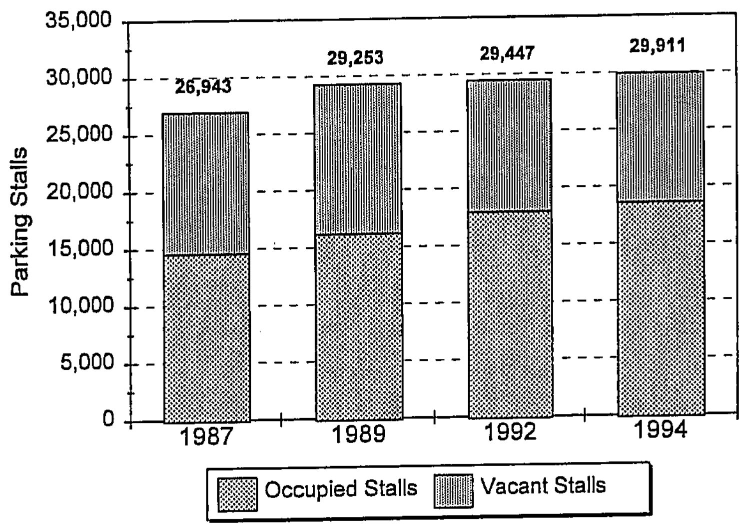
The occupancy rates increased at an annual rate of 2 percent since 1987 (Table 23). While yearly growth was small, the cumulative effect is that occupancy increased to 62.4 percent in 1994 from 54.3 percent in 1987. The growth during the last two years (1.1 percent) was below the average for the period. This rate of change is identical to what took place between 1987 and 1989. However, that was also a period of growth in the number of stalls. In contrast, occupancy rates between 1989 and 1992 rose 3.2 percent annually.

Table 23
Bellevue CBD: Occupancy Rates and Annual Pct Change, 1987-1994

Zone	1987 Occupancy Rate (%)	1989 Occupancy Rate (%)	87-89 Annual % Change	1992 Occupancy Rate (%)	89-92 Annual % Change	1994 Occupanc Rate (%)	92-94 Annual % Change	87-94 Annual % Change
52	54.5	41.3	-13.0	61.8	14.4	66.4	3.7	2.9
53	65.8	57.8	-6.3	68.0	5.6	67.9	-0.0	0.5
62	48.6	55.4	6.8	55.5	0.1	58.4	2.5	2.7
63	58.9	59.2	0.2	65.2	3.3	66.5	1.0	1.7
70	48.9	57.9	8.9	49.4	-5.2	54.3	4.9	1.5
71	48.0	59.0	10.8	55.8	-1.9	49.2	-6.1	0.3
80	64.4	67.0	1.9	70.7	1.8	61.8	-6.5	-0.6
TOTAL	54.3	55.5	1.1	61.0	3.2	62.4	1.1	2.0

Most of the parking in the CBD (68.8 percent, Table 25) is for short term parking. Since short term parking is influenced by the time of day, weather, and the day of the week, there may be more variability in the occupancy rate in the Bellevue CBD than in other areas. Thus, comparisons over time may not be as reliable as in areas with more long term parking.

Figure 14
Bellevue CBD: Total Capacity and Occupancy, 1987-1994



The biggest changes in occupancy rates between 1992 and 1994 occurred at opposite ends of downtown. Occupancy rates in zone 52 increased 7.5 percent, due mostly to higher occupancy rates in the 1,500 stall Hyatt Regency garage. The 12.6 percent drop in zone 80 occurred mostly in the north part, where Overlake Hospital and a number of clinics are located.

Figure 14 compares the total capacity with occupancy in the Bellevue CBD from 1987 to 1994.

Parking Cost

Average parking costs in Bellevue are shown in Table 24. Because of the small number of pay lots in the CBD, comparisons of average costs over time are only meaningful at the CBD level and not at the level of the individual parking zones. Even at that level, one or two large garages can have a significant effect on the downtown averages. Overall, parking rates in the Bellevue CBD are in line with similar rates in Seattle outside the downtown core.

Table 24
Bellevue CBD: Average Parking Costs and Annual Pct Change, 1987-1994

Zone	1987 Weighted Avg	1989 Weighted Avg	87-89 Annual % Change	1992 Weighted Avg	89-92 Annual % Change	1994 Weighted Avg	92-94 Annual % Change	87-94 Annual % Change
0-2 Hours	$2.10	$2.18	1.9	$2.14	-0.6	$2.36	5.0	1.7
Daily	$6.06	$6.01	-0.4	$6.58	3.1	$6.55	-0.2	1.1
Monthly	$52.00	$54.28	2.2	$63.06	5.1	$67.47	3.4	3.8

Average two-hour parking costs have gone up 22 cents since 1992, a 5 percent annual increase, after experiencing little variation over the previous five years. That statistic is misleading, however. Of the 18 facilities that offer hourly rates, two raised their rates for two-hour parking while one lowered it. Much of the difference between 1992 and 1994 is accounted for by the new Convention Center, which charges an hourly rate above the downtown average.

The situation is much the same for daily rates. The average rate remained virtually unchanged from 1992 and all but three of the pay lots charged the same daily rate as in 1992. Several lots and garages charge the same two hour and daily rates as in 1987.

Monthly costs, however, have grown steadily since 1987 throughout the CBD. The monthly average rose 3.4 percent annually between 1992 and 1994, from $63.06 to $67.47. That rate is nearly identical to the 3.8 annual growth rate since 1987.

Table 25 shows the percent of pay and free stalls by year, and the average occupancy for each. Because there are so few pay lots in individual zones, CBD totals are used. Pay stalls have gone from under 21 percent of all CBD parking in 1987 to more than 31 percent. The great majority of new parking added since 1987 has been pay stalls.

Table 25
Bellevue CBD: Pay and Free Parking Stalls, 1987-1994

Year	Total Stalls	Pay Stalls			Free Stalls		
		Number of Stalls	Percent of Total	Occupancy Rate (%)	Number of Stalls	Percent of Total	Occupancy Rate (%)
1994	29,911	9,331	31.2	77.0	20,580	68.8	55.7
1992	29,447	8,952	30.4	75.2	20,495	69.6	54.8
1989	29,392	8,859	30.1	61.2	20,533	69.9	53.0
1987	26,943	5,569	20.7	68.3	21,374	79.3	50.7

APPENDIX

METHODOLOGY FOR THE 1994 PARKING INVENTORY

Scope of Study

Data for the study was collected between April 5, 1994, to May 23, 1994. Traditionally, travel and transportation data related to commuting behavior are collected in the spring or fall, when travel patterns are more stable. The three earlier surveys were conducted in April and May and a comparable period was desired.

The types of parking inventoried included:

- off-street parking, both public and private;
- free and pay parking;
- carpool and vanpool lots;
- motor pool parking, both private and government;
- hotels and motels;
- short-term customer parking such as convenience stores and restaurants; and
- residential parking in the Seattle CBD only.

Types of parking excluded from the study were:

- on-street parking;
- new and used auto and truck sales lots;
- parking occupied by police, fire, and emergency vehicles;
- car rental lots;
- Metro bus and van storage lots;
- parking associated with auto and truck repair shops; and
- residential parking in the First Hill, lower Queen Anne, and Bellevue CBD areas

Data Collection

The data collection team surveyed the Seattle zones on foot. The Bellevue zones were surveyed primarily by vehicle. Surveys were conducted Monday through Friday between the hours of 9:30 a.m. and 11:30 am, and 1:30 p.m. and 3:30 p.m. Each lot was surveyed during one morning and one afternoon period, on the same day, when possible. Each parking lot was coded to a 1990 census tract and block number in which it was located. The information collected included the lot address, owner/tenant, total number of stalls, morning and afternoon occupancy, type of parking, cost, and comments (see Figures 14 and 15). In Bellevue, the parcel number was also recorded. We attempted to inventory the Kingdome, the Seattle Center, and the Washington State Convention and Trade Center during an "average weekday", when no special events were taking place.

Occupancy

Two occupancy counts were taken at each lot, one in the morning and one in the afternoon. The morning count took place between 9 and 11:30 am; the afternoon count could take place 1 and 3:30 pm. These times were chosen because they are the times when parking utilization is most stable during a weekday. By 9 am, the morning commuter rush hour has essentially ended and shoppers have begun to arrive. After 3:30 pm, commuters begin to leave downtown. No counts were taken during the lunch hour because of high turnover at that time.

The occupancy rate is the average of the morning and afternoon counts, divided by the total number of stalls. The more counts for each lot, the more accurate the occupancy measures. However, the cost of the survey also increases substantially. A single count for each lot could introduce bias because of a difference in parking activity between the morning and afternoon. The PSRC determined that making two counts, during different parts of the day, was a reasonble compromise between accuracy and cost. These figures should be evaluated with this limitation in mind.

Parking Cost

Three cost figures were sought at each lot: the two-hour cost, the daily cost, and the monthly cost. The PSRC collected costs for only the normal work week: Monday through Friday, 9:00 a.m. to 5:00 p.m.

Two hour rates were used as a way to standardize short-term parking rates. These can vary greatly, with a minimum time ranging from 1/2 hour to an hour and a half. Parking lots will also charge for additional time past the minimum at increments of 1/2 hour and 1 hour. Where there was no posted 2-hour rate, the data collectors computed a 2-hour equivalent based on the minimum time plus incremental times that add up to two hours.

If the minimum time was greater than two hours, then only a daily rate was recorded, using either the posted daily rate, if any, or an equivalent daily rate based on increments of the minimum rate that add up to six hours.

Many lots in outlying areas had only monthly rates, which were not posted, and a follow-up phone call was required. When more than one monthly rate was available, an average rate, weighted by number of stalls, was recorded.

Special discounted rates were not included in any of the studies. These include employer subsidies, group discounts, special coupons, and "early bird" rates. Special rates for carpools and vanpools were not used unless the lots were used exclusively by carpools and/or vanpools.

The 1994 study differentiated between four types of parking in the Seattle CBD:

- pay parking;
- residential parking;
- free short-term customer parking, such as convenience stores and restaurants;
- other free parking, primarily employee or tenant parking.

In the First Hill and lower Queen Anne areas, all residential parking, both free and pay, was excluded from the study. In these areas, three types of parking were differentiated:

- pay parking;
- free short-term customer parking;
- other free parking, primarily employee or tenant parking.

Where monthly employee or tenant parking rates could be obtained, those were included in the analysis of pay parking. Otherwise, no separate analysis was done on parking specifically designated as "employee", either because it was not always possible to determine the exclusive purpose of a parking facility or because a facility may combine employee and other types of parking with no physical differentiation.

In the Bellevue CBD, parking was recorded as any of three types:

- pay parking;
- free short-term customer parking;
- reserved or exclusively employee or tenant parking.

"Free" parking was determined on the basis of cost to the user. The exception was free employee parking subsidized by an employer. In this case, an attempt was made to find out the price paid by the employer to the parking facility owner. Free parking included parking facilities that were clearly free-of-charge, as well as parking stalls included with the price of a condominium (zones 1-13 only), parking included at no extra cost with an apartment rental (zones 1-13 only), and parking included in a commercial lease and offered at no cost to employees or customers.

Parking costs were weighted by the number of stalls in a pay lot. In lots with mixed hourly, daily, and monthly leasing, separate weighting of costs was usually not possible. For lots with only monthly parking rates, no daily or 2-hourly cost was computed. All parking costs are reported in current dollars and have not been adjusted for inflation. These factors affect the average costs reported.

Figure 15
1994 Data Collection Form for Seattle

The SAS System 08:04 Tuesday, April 5, 1994
1

1994 PARKING INVENTORY: SEATTLE CBD
DATA COLLECTION FORM NAME: ______ DATE: ______ **** Z O N E: ____

TRACBLK	LOCATION	COST 0-2	COST DAY	COST MONTH	92 MAX OCC	94 MAX OCC	AM OCC	PM OCC	TYPE C/E/O/R	COMMENT
ID= OWNER=	Lot #: .	.	.	.	.					
ID= OWNER=	Lot #: .	.	.	.	.					
ID= OWNER=	Lot #: .	.	.	.	.					
ID= OWNER=	Lot #: .	.	.	.	.					
ID= OWNER=	Lot #: .	.	.	.	.					
ID= OWNER=	Lot #: .	.	.	.	.					
ID= OWNER=	Lot #: .	.	.	.	.					
ID= OWNER=	Lot #: .	.	.	.	.					

Figure 16
1994 Data Collection Form for Bellevue

The SAS System 14:58 Friday, May 13, 1994 48

1994 PARKING INVENTORY: BELLEVUE CBD

DATA COLLECTION FORM NAME DATA

* * * M A P # 52 * * *

ID #	TRACBLK	PARCEL #	COST 0-2	COST DAY	COST MNTH	92 MAX OCC	94 MAX OCC	AM OCC/ TIME	PM OCC/ TIME	TYPE R/C/O	COMMENT
# MAP=52 OWNER=	-	parcel .	.	.	.	.		------	------		( ) ( )
# MAP=52 OWNER=	-	parcel .	.	.	.	.		------	------		( ) ( )
# MAP=52 OWNER=	-	parcel .	.	.	.	.		------	------		( ) ( )
# MAP=52 OWNER=	-	parcel .	.	.	.	.		------	------		( ) ( )
# MAP=52 OWNER=	-	parcel .	.	.	.	.		------	------		( ) ( )
# MAP=52 OWNER=	-	parcel .	.	.	.	.		------	------		( ) ( )
# MAP=52 OWNER=	-	parcel .	.	.	.	.		------	------		( ) ( )
# MAP=52 OWNER=	-	parcel .	.	.	.	.		------	------		( ) ( )

Parking Database

Each parking lot was entered as a separate record into a SAS[1] dataset.

Some lots were divided into two separate records if the parking was segregated for two different price structures or uses. Each record was assigned a unique identifier, called PARKID. Figure 16 shows the file structure of the SAS dataset.

The parking database contains:

- 1994 parking inventory data;
- 1992 parking inventory data; and
- location and ownership of parking lot.

The 1994 parking inventory data is consistent with the 1992 parking inventory data in file structure, variables, and data collection method. During the 1994 study, errors and omissions were found in the 1992 data and the database was revised.

Revisions made to the 1987 parking inventory data:

<u>Seattle</u>

- Zone 6: 16 stalls moved from zone 9. A 36-stall lot reinstated after being mistakenly deleted in 1992.
- Zone 9: 16 stalls moved to zone 6; 132 stalls in two lots moved to zone 10. Deleted a 23-stall lot that proved to be nonexistant.
- Zone 10: 132 stalls in two lots moved from zone 9. Deleted an 8-stall lot that was a duplicate record.
- Zone 11: Deleted a 7-stall lot and a 24-stall lot that were nonexistant. The capacity of a lot was adjusted from 21 to 10 stalls. Three separate records in one block were reconfigured as a single record with the loss of 2 stalls.
- Zone 12: A 260-stall lot was reduced to 120 stalls after examination of the original inventory and comparison with subsequent inventories.

<u>Bellevue</u>

- Zone 62: Added a 37-space lot that was mistakenly deleted from 1992 report.
- Zone 63: Added a 40-space lot that was mistakenly deleted from 1992 report.

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[1] SAS is a registered trademark of SAS Institute, Inc., Cary, NC.

Revisions made to the 1992 parking inventory data:

Bellevue

- Zone 80: Parking associated with Bellevue municipal offices and the police department, located south of Main Street and east of I-405, was inventoried in 1992 but not included in the 1992 report. Those spaces, totalling 483 stalls, have been added to the 1992 numbers for this report, along with the 1994 inventory of that parking.

Figure 16
1994 Parking Database - File Structure

```
PARK94.SEATTLE3: 1994 parking dataset, v. 3 - 1/17/95        8:23 Wednesday, February 8, 1995

CONTENTS PROCEDURE

Data Set Name: PARK94.SEATTLE3                          Observations:         1292
Member Type:   DATA                                     Variables:            33
Engine:        V609                                     Indexes:              0
Created:       8:24 Wednesday, February 8, 1995         Observation Length:   429
Last Modified: 8:24 Wednesday, February 8, 1995         Deleted Observations: 0
Protection:                                             Compressed:           NO
Data Set Type:                                          Sorted:               NO

-----Engine/Host Dependent Information-----

Data Set Page Size:         40960       File Name:   /sas/parking/park94/seattle3.ssd01
Number of Data Set Pages: 14            Inode Number:            398233
File Format:                607         Access Permission:       rw-rw-r--
First Data Page:            1           Owner Name:              neil
Max Obs per Page:           95          File Size (bytes):       581632
Obs in First Data Page:     85
```

-----Alphabetic List of Variables and Attributes-----

#	Variable	Type	Len	Pos	Format	Label
21	AOCC92	Num	5	170	4.	AM*Occupancy*1992
20	AOCCUPCY	Num	5	165	4.	AM*Occupancy
17	CDLY92	Num	8	141	DOLLAR7.2	Cost*Daily*1992
19	CMTH92	Num	8	157	DOLLAR8.2	Cost*Month*1992
10	CODE	Char	1	105		Record*Status
32	COMMENT1	Char	50	329		First comment line
33	COMMENT2	Char	50	379		Second comment line
14	COST02	Num	8	117	DOLLAR7.2	Cost *0-2 HRS
15	COST92	Num	8	125	DOLLAR7.2	Cost*0-2 hrs*1992
16	COSTDLY	Num	8	133	DOLLAR7.2	Cost*Daily
18	COSTMTH	Num	8	149	DOLLAR8.2	Cost *Month
26	EBCOST	Num	8	213	DOLLAR8.2	Cost of Early Bird Special
30	EBCOST92	Num	8	301		1992 Cost of Early Bird Special
27	EBTIME	Char	20	221		Early Bird Special times
31	EBTIME92	Char	20	309		1992 Early Bird Special times
24	ERLYCOST	Num	8	185	DOLLAR7.2	Cost*Early Bird*Special
25	ERLYTIME	Char	20	193		Early Bird*Special*Time
5	LOCATION	Char	30	16	27.	Location
4	LOT	Num	3	13		Parking lot number within block
13	MAX92	Num	5	112	4.	Total*Stalls*1992
12	MAXCAPCT	Num	5	107	4.	Total*Stalls
6	OWNER	Char	30	46	23.	Owner
1	PARKID	Char	4	0		Survey ID
7	PHONE	Char	20	76		Phone # for lot owner
23	POCC92	Num	5	180	4.	PM*Occupancy*1992
22	POCCUPCY	Num	5	175	4.	PM*Occupancy
3	TRACBLK	Char	6	7		Track*Block
11	TYPE	Char	1	106		Type of*Parking
8	UPDATE	Char	1	96		Update code (U/N/D)
28	XCOMMNT1	Char	30	241		First comment line from 1992
29	XCOMMNT2	Char	30	271		Second comment line from 1992
9	XDATE	Num	8	97	DATE8.	Date of last update
2	ZONE	Num	3	4	2.	Parking zone